



## GeoSpatial Weather for Decision Support Applications

presented to

**INFORMS  
Annual Meeting**

November 2005

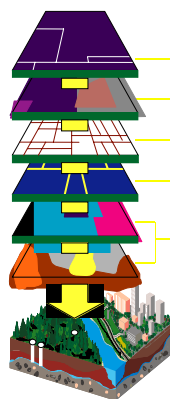
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## What is GIS Weather ?



**GIS = Geographic Information System**

- All weather is geo-referenced
  - x(lat), y(lon), z(hgt), t(time)
- This facilitates interoperability with map libraries as well as fixed or mobile assets
  - At point locations
  - Along vectors
  - Within or bordering coverages



Aircraft locations  
Restricted Airspace  
Airways  
Waypoints  
Airport Locations  
... and WEATHER layers  
to improve visualization  
and help determine the  
impact of the weather on  
business operations

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## Meteorlogix GIS Products



### Components of GeoSpatial Weather Solutions

#### 1) GIS Weather Data Services

- Current, forecast, and recent history; Domestic and Global data
- Conversion of proprietary weather data into GIS formats
- Satellite and Internet delivery; Hosted or on-site conversion

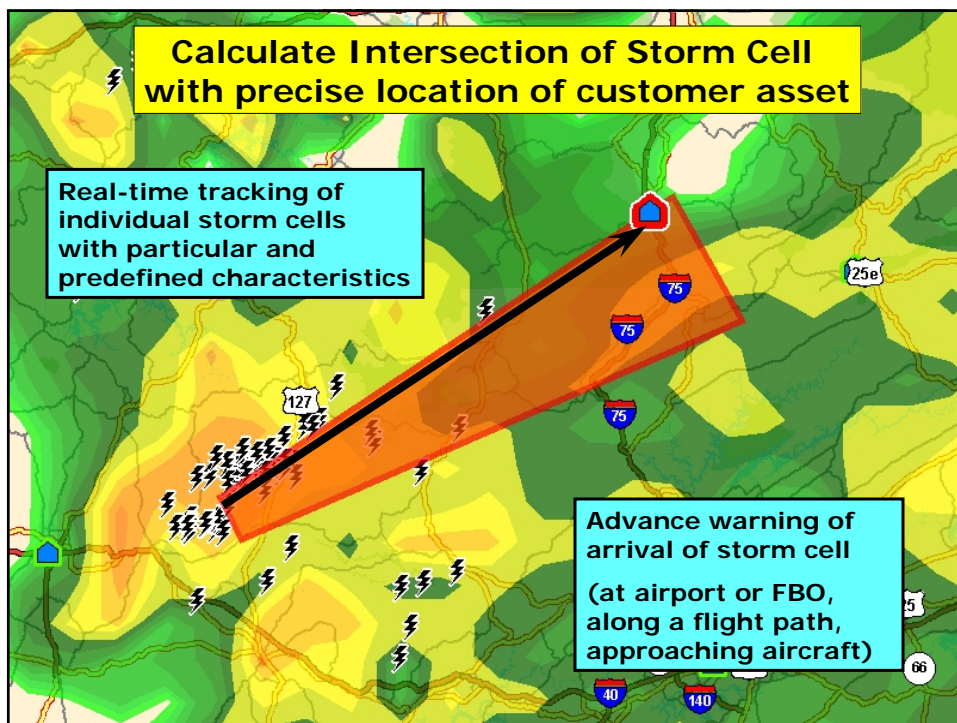
#### 2) Geospatial Weather Display-Analysis Technology

- MxAnalyst ESRI GIS mapping visualization and analysis toolkit

#### 3) Weather-enabled Decision Support Tools

- So What?
- SiteWatch weather monitoring and alerting system components
- Dynamic location-based alerting and message distribution

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## GIS Weather Decision Support



### Union Pacific Railroad

- Monitors weather information across entire national rail system
- Automatically determines if specific weather conditions meet or exceed railroad defined thresholds
  - Customizable parameters set by client
  - Based on Railroad rules of operation
- Analyzes weather conditions in conjunction with precise location of railroad assets
- Sends alert notification to the responsible Dispatcher, Service Interruption Center and Crews
- In operation for 4+ years
- Has averted several moving derailments



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## Union Pacific Weather Alert Notification

### Tornado



#### Observed Weather Event

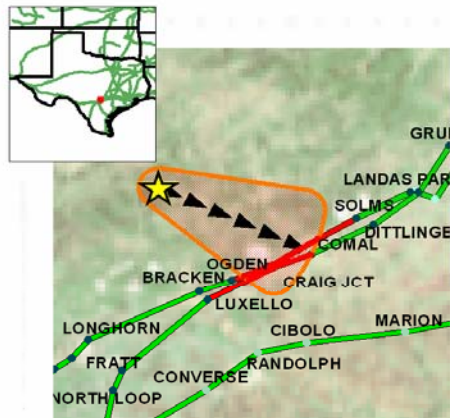
Storm with Tornadoic signature approaching Tracks at 52 MPH.

Issue Time: 05/23/01 11:48:46 CDT

Expire Time: 05/23/01 11:57:46 CDT

#### Track Segment(s):

OGDEN to COMAL  
LUXELLO to SOLMS

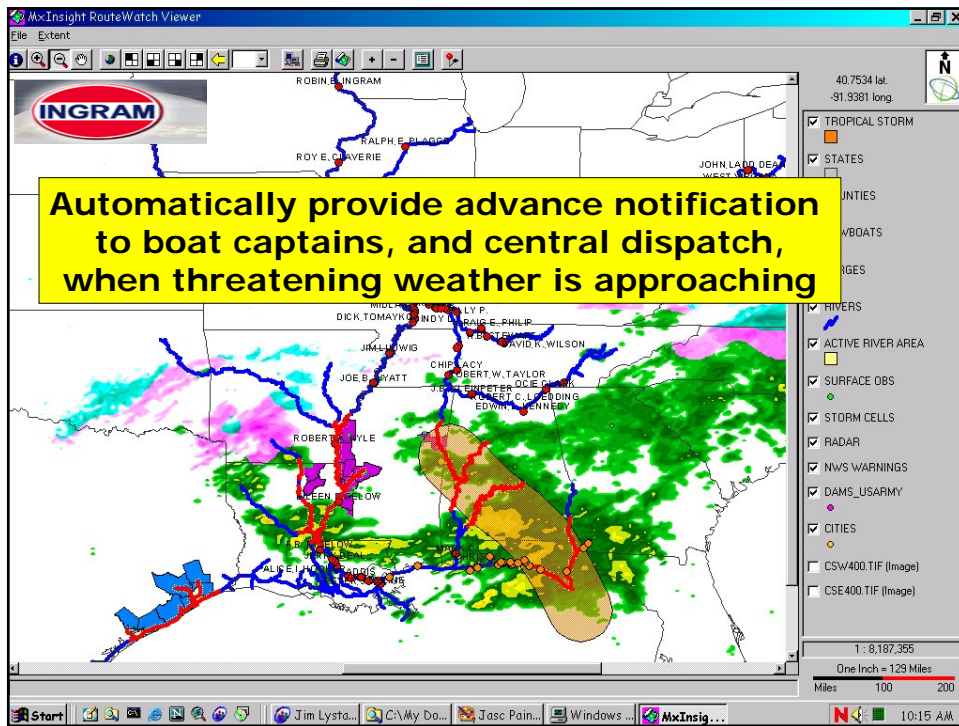


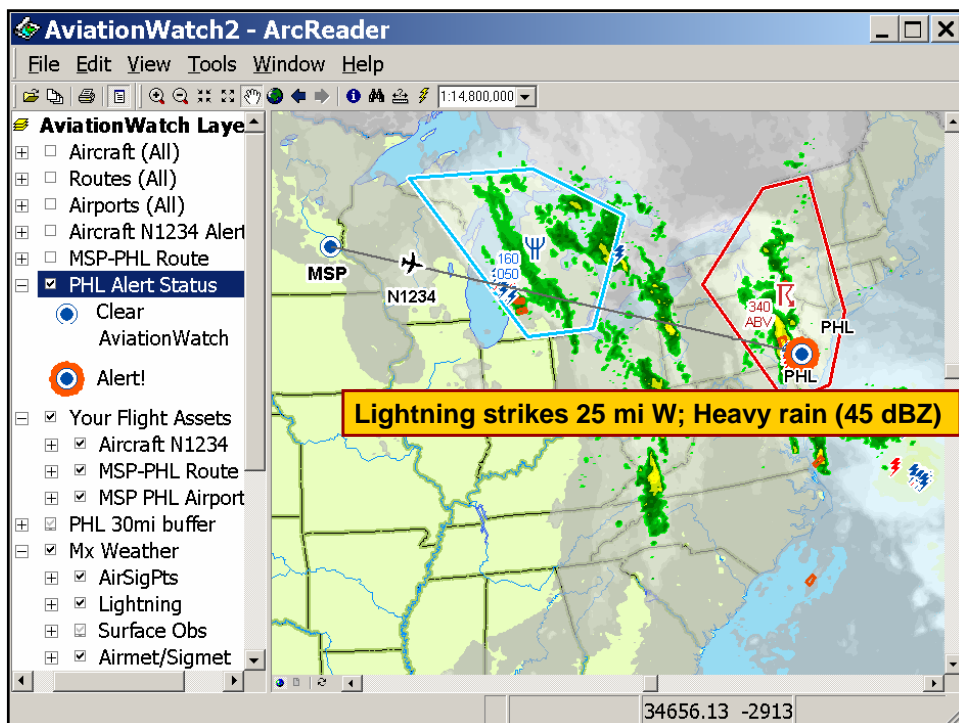
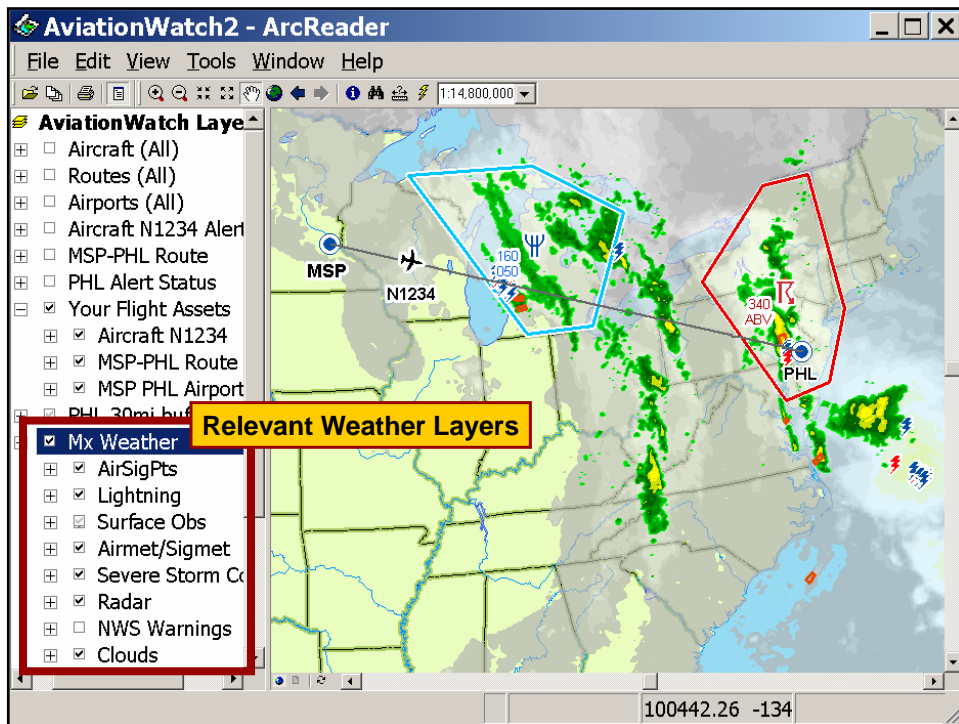
#### Comment:

A NEXRAD Storm Cell identified with a Tornadoic signature is approaching

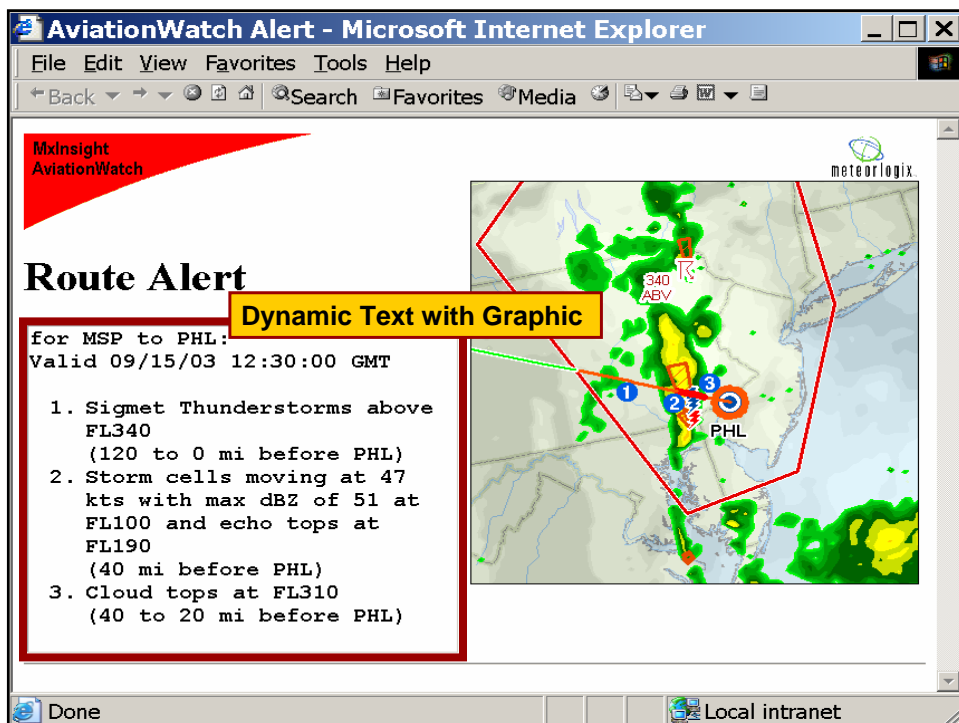
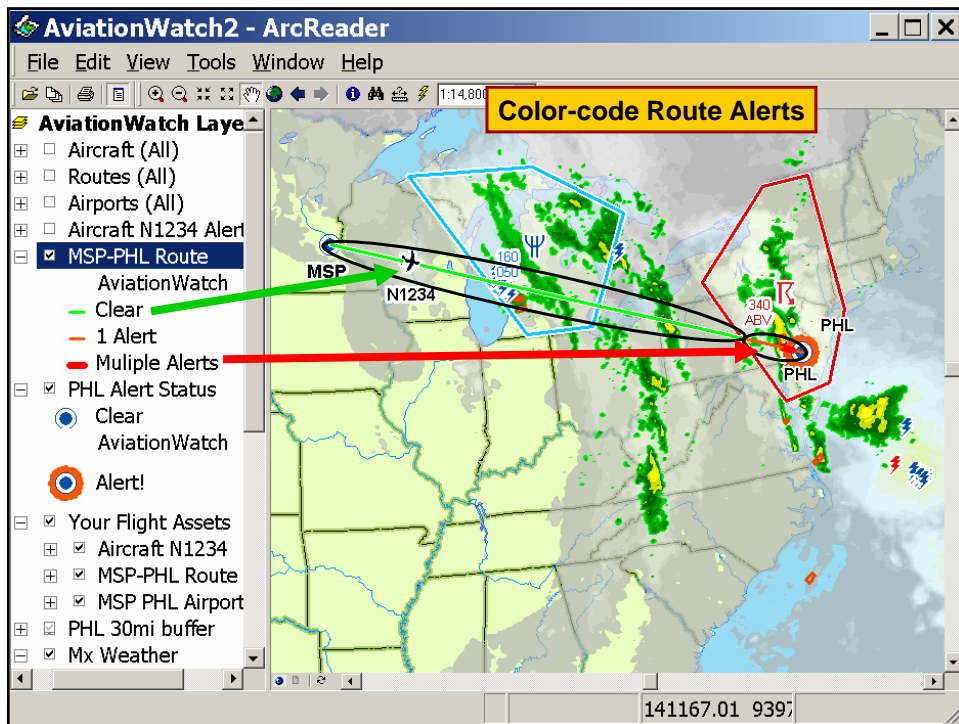
**Take Action Immediately**

**Custom alert with intelligent message routing**











45°N 93°W

## For More Information

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